



United States
Department of
Agriculture

Forest
Service

Southwestern Region
Forest Health
Arizona Zone Office

2500 S. Pine Knoll Drive
Flagstaff, AZ 86001-6381
FAX (928) 556-2130
Voice (928) 556-2073

File Code: 3420

Route To: (2400), (5100)

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Subject: Insect and Disease Conditions in the Willow Canyon Area, Santa Catalina RD

To: District Ranger, Santa Catalina Ranger District

This letter serves as an evaluation for the proposed FY 2007 Willow Canyon Prevention Project submitted by Bill Hart, Fuels Management Specialist. This project is located within the Willow Canyon Summerhome subdivision, adjacent to the 2006 Willow Ridge Restoration Project area. The proposal was submitted to cover the costs associated with precommercial thinning and slash treatment on 40 acres. Approximately one-half of the subdivision is currently receiving treatment with forest health FY2006 carryover funds; the 2007 project would complete treatment in the subdivision.

Forest vegetation is composed of Arizona pine, (*Pinus arizonica*, a 5-needled variety of ponderosa pine), Douglas fir, silverleaf oak, Arizona white oak, and Chihuahua pine. Stand densities and fuel loadings are very high throughout the area. Two different wildfires burned over small parts of the subdivision in the past 5 years, resulting in the destruction of 15 of the 72 summerhomes. However, most of the overcrowded stands within the subdivision survived these fires (Figure 1). There is southern or Mexican pine bark beetle activity in old growth trees and ips engraver beetle activity in smaller diameter trees, which appeared to be increased in untreated areas from my 2005 visit. Southwestern dwarf mistletoe infection in Arizona pine is dispersed in pockets throughout the area (Figure 2).

The primary objectives for the Willow Canyon Prevention project are to reduce competition, decrease live fuel levels, and decrease dwarf mistletoe infection levels in order to promote the health and longevity of residual trees. A reduction in basal area will also help reduce potential bark beetle activity in the future. The proposed treatment is to thin from below to 70 square feet of basal area per acre (BA) by targeting trees less than 16" dbh. Spacing between residual trees is based on the diameter of targeted residuals. Trees less than 5" dbh will be spaced 12' to 15' apart; 5" to 9" dbh trees will be spaced by 15' to 18'; and trees 9" to 16" dbh will be separated 20 to 25 feet. Dwarf mistletoe infected trees will be selected for removal over uninfected trees.



Figure 1 Willow Canyon Subdivision has dense stands of Arizona pine infested with bark beetles.



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Slash will be piled and burned. The District hopes to contract with the Department of Corrections to get this project completed.

The proposed thinning treatments will help to reduce the overall susceptibility of stands to bark beetle attack as well as improve overall tree vigor, lessen risk of catastrophic wildfire, and improve vegetative species diversity. High stand density reduces both individual tree and stand vigor which increases stand susceptibility to mortality from bark beetles. Excess competition from smaller trees has also greatly increased the risk of loss due to mortality of the scattered large yellow pine. Continuous interlocking crowns and well-developed fuels ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

Targeting more severely dwarf mistletoe infected trees during thinning treatments and creating more space between trees will reduce the impact of dwarf mistletoe on the residual stand in the short term. Seeds of dwarf mistletoe are explosively released and typically travel 10 to 40 feet from a fruit bearing plant. Although dwarf mistletoe infection levels will decrease in the size classes targeted during thinning (<16"DBH), trees larger than 16" DBH and severely infected will be a greater source of inoculum to the residual stand and be more susceptible to bark beetle attack. Monitoring for followup treatments is recommended.

Thinning slash may pose a short-term risk to residual trees in the thinning units or surrounding areas depending on the timing of thinning, local population of pine engraver beetles, and site and environmental factors such as site quality and precipitation. Our office recommends that slash be generated between late summer and the end of December, if possible, in order to lessen the buildup of ips bark beetles. Slash piles should be placed in stand openings as much as possible and the largest diameter slash put on the outside of the pile to promote quick drying. Tepee style slash piles with branches and small-diameter slash in the middle and the larger diameter material on the outside.

If you have any questions regarding this evaluation, please let us know. I can be reached at (928) 556-2075 (mfairweather@fs.fed.us, Mary Lou).



Figure 2 Southwestern dwarf mistletoe infection in Arizona pine.

/s/ *Mary Lou Fairweather*
MARY LOU FAIRWEATHER
Forest Pathologist, Forest Health, Arizona
Zone

cc: William R Hart
Debra Allen-Reid

John Anhold
Craig P Wilcox